

INTERNATIONAL SEARCH REPORT

Internal application No
PCT/EP2004/052169

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/30 C07K14/44 C12N15/63 A61K39/018 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	GAFFAR FASILA R ET AL: "Erythrocyte invasion by Babesia bovis merozoites is inhibited by polyclonal antisera directed against peptides derived from a homologue of Plasmodium falciparum apical membrane antigen 1" INFECTION AND IMMUNITY, vol. 72, no. 5, May 2004 (2004-05), pages 2947-2955, XP002314305 ISSN: 0019-9567 figure 1 ----- -/--	1,4,7-20

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

20 January 2005

Date of mailing of the international search report

26 -07- 2005

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>COURT R A ET AL: "MAPPING THE T CELL EPITOPES OF THE BABESIA BOVIS ANTIGEN 12D3: IMPLICATIONS FOR VACCINE DESIGN" PARASITE IMMUNOLOGY, BLACKWELL SCIENTIFIC PUBLICATIONS, OXFORD, GB, vol. 20, no. 1, January 1998 (1998-01), pages 1-8, XP008026462 ISSN: 0141-9838 page 1, right-hand column</p>	1,4,7-20
A	<p>NORIMINE J ET AL: "IMMUNODOMINANT EPITOPES IN BABESIA BOVIS RHOPTRY-ASSOCIATED PROTEIN 1 THAT ELICIT MEMORY CD4+-T-LYMPHOCYTE RESPONSES IN B. BOVIS-IMMUNE INDIVIDUALS ARE LOCATED IN THE AMINO-TERMINAL DOMAIN" INFECTION AND IMMUNITY, AMERICAN SOCIETY FOR MICROBIOLOGY, WASHINGTON, US, vol. 70, no. 4, April 2002 (2002-04), pages 2039-2048, XP001184704 ISSN: 0019-9567 page 3039, right-hand column page 2045, left-hand column - right-hand column, paragraph 1 page 2047</p>	1,4,7-20
A	<p>WO 90/11776 A (UNIV FLORIDA ; UNIV WASHINGTON (US); US AGRICULTURE (US)) 18 October 1990 (1990-10-18) page 3, line 10 - line 24</p>	1,4,7-20

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

(1, 4 and 7-20) - partially

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: (1, 4 and 7-20) - partially

Piroplasmid protein consisting of SEQ ID NO:2, fragments and variants thereof, gene encoding it (SEQ ID NO:1), vector comprising the gene, host cell transformed with the vector, vaccines derived thereof and diagnostic method involving the use of the protein subject of the invention or of its corresponding gene.

2. claims: (1, 4 and 7-20) - partially

Idem as subject 1, but restricted to SEQ ID NOs: 4 and 3.

3. claims: (2, 5 and 7-20) - partially

Idem as subject 1, but restricted to SEQ ID NOs: 6 and 5.

4. claims: (2, 5 and 7-20) - partially

Idem as subject 1, but restricted to SEQ ID NOs: 8 and 7.

5. claims: (3, 6 and 7-20)

Idem as subject 1, but restricted to SEQ ID NOs: 10 and 9.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9011776	A	18-10-1990	AU 5417590 A
			WO 9011776 A1
			US 5518916 A
			ZA 9002546 A
			05-11-1990
			18-10-1990
			21-05-1996
			24-04-1991